

Legge School of Natural Health Care

FITNESS COURSE

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Legge School of Natural Health Care

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FITNESS COURSE

Cardiovascular Training
Strength Training

HEALTH COURSE

Sauna Cleansing
M.E.D. Therapy Spa

YOUTHFULNESS COURSE

Whole Body Vibration (WBV)
Inversion/Oscillation

NUTRITION COURSE

How the Body Works
Nutrition Profile
Cleansing Program
Natural Supplements

RELATIONSHIP HEALTH COURSE

How to Heal Relationships
Good Relationships Heal the Mind and Heart

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FITNESS COURSE – Cardiovascular Training

Cardiovascular training has become a worldwide practice over the last 40 years approximately, or since the 1970's. As recently as the 1960's, and even into the 1970's heart patients were often kept in bed for weeks and even months after having a heart attack. The theory was that the heart muscle had been damaged by the heart attack, and it needed rest to heal and to get stronger. The result was that many heart patients died in bed, or if they did recuperate they did not participate in an active lifestyle. Most heart patients were expected to take drugs on a long-term basis, and also maintain an inactive lifestyle of sitting around and resting.

This all began to change in the 1970's because there was more research into exercise programs for athletes, both professional and amateur. Sports were becoming more competitive, and more lucrative because of the boost in advertising revenue from sports being broadcast on television more frequently. As a result, teams were trying to improve the athletic performance of their players, and also decrease injuries and shorten the rehabilitation time of injured players. The space program also caused scientists to look into improving the strength and physical conditioning of astronauts because of the extreme demands put on the human body by space travel. Cardiovascular training and also strength training were found to dramatically improve a person's physical strength for sports, for space travel, for work or any other physical activity. Another benefit was that many injuries could be prevented, and if a person was injured their recovery time was much shorter.

The question arose during the 1970's that since cardiovascular training and strength training had such amazing benefits for a healthy, youthful person, could there be any potential benefits for the sick and the elderly if they had a modified program that was scaled down to their fitness level. Research and testing began, and the results shook the medical field like an earthquake! Cardiologists began getting heart patients out of bed sooner after their heart attack, and started them on a graduated walking program. Within a few months many patients were walking several miles a day, and were in much better condition than before their heart attack. **Some of these middle-aged patients were going into the Boston Marathon and completing it!** The medical profession said they have discovered that the heart, even though it is the cardiac muscle, is not unlike our skeletal muscles, and that it needs regular and appropriate exercise to be strong and function properly. If it does not get proper exercise it will decondition and weaken just like any other muscle in the body, and the results can be fatal. This research and testing was conducted all over the world, and proved that most people have a health and fitness potential that is much higher than they realize. Many people suffer with poor health and premature ageing when they could enjoy a strong, healthy and youthful body, and be much more productive in their work, family life and social life.

It was discovered that a good cardiovascular program could reduce a person's resting heart rate by up to 25 beats per minute. That translates into 1,500 beats per hour, or 36,000 beats per day, and in one month **over 1 million beats can be saved** on the heart muscle! This is one of the greatest life extension programs available. That is because cardiovascular training is primarily working internally on gland and organ strength. A person's outward appearance might not change that much, except in the area of weight loss, and overall muscle toning with less body fat. In contrast, strength training focuses on skeletal muscle and joint strength, and the changes outwardly to a person's level of strength, and the shape of their body are very obvious in a short period of time. **(See the Strength Training Section.)**

There is a famous saying that says, **“The two best doctors in the world are your right leg and your left leg!”** Walking is an effective way to improve physical health, and also mental and emotional health as well. Many people have been able to change their whole life and their future by walking. It has been found that the repetitious movement of walking puts the body into the parasympathetic state, which is the state of “rest and repair”. It usually takes about 20 minutes or more of walking before the body goes into this state. Mental and emotional stress puts a tremendous burden on the subconscious, and can cause many different types of physical ailments. Walking for 20 minutes or more each day allows the conscious mind, and the subconscious mind to relax, and to be able to deal with things that cause stress much more effectively. **Most of what is going on in the body is controlled by the subconscious mind!** With our conscious mind we decide what we want to say or do, but it is the subconscious mind that actually **gives us the ability to speak and move.** It also controls the beating of our heart, and our breathing, and the complex digestive process, the production of hormones, the immune function, the electrical impulses from the brain through the nervous system, the healing of the body if it is sick or injured, and the list goes on and on. In other words, the subconscious mind has a lot of responsibilities that our conscious mind is not even aware of, and our conscious mind could not perform these things even if it was aware of them. When stress is added to that list, and especially chronic long-term stress, the subconscious is not able to perform properly, and as a result the physical body starts to shut down and malfunction. Drugs are often prescribed, but that is not a natural approach, and can be covering up the underlying problem of chronic stress. Many people have found that walking is the best medicine for their subconscious mind, and is an effective way to improve mental and emotional health, and physical health as well!

So what do we mean by a good cardiovascular program that will provide physical, mental and emotional benefits? It is essential that a person exercises in their **age-related target zone.** A person’s maximum heart rate is 220 beats per minute minus their age. Therefore, a 20 year old person would have a maximum heart rate of 200 beats per minute, and a 40 year old would have a maximum heart rate of 180 beats per minute, and a 70 year old would have a maximum heart rate of 150 beats per minute. If the individual is in good health they would normally exercise between 65% and 85% of their maximum heart rate. For a 20 year old this would be between 130 and 170 beats per minute. For a 40 year old the range would be 117 to 153 beats per minute. And for the 70 year old the range would be 98 to 128 beats per minute. People who are in excellent condition, or who train for competitive activities will sometimes train beyond 85% of their maximum heart rate.

Depending on a person’s fitness level and health concerns they might start with as little as a few minutes training, 3 times per week. Each week they should be able to increase their training session by a few minutes, but only if they are comfortable doing so. With a graduated program like this, after 6 to 8 weeks a person would be up to 20 to 30 minutes per session 3 times a week. This is considered to be the minimum duration and frequency for significant improvement in their level of cardiovascular fitness. However, before beginning any exercise program it is important to get your doctor’s advice.

Which fitness products provide the most cardiovascular benefits? Treadmills and ellipticals are weight bearing, and recumbent cycles (bikes), rowing machines and upright cycles (bikes) are not weight bearing. The goal is to use products that engage most of the muscles and joints in the body. Working out on a variety of products is good because then it is fun and exciting for the user, and more of the muscles and joints are used in different positions and alignments to accelerate the health and fitness benefits.

Quality cardiovascular products will **monitor your fitness level**, and also perform fitness tests for the individual. A heart rate transmitter is used which goes around the diaphragm at the bottom of the rib cage, and sends a wireless signal to the monitor on your fitness product. This will provide accurate heart rate readout so that you can exercise in your age-related target zone. Heart rate controlled workouts can be performed as well. The user simply enters the heart rate that they want to exercise at, and the fitness product will give you a warm-up and keep you in your target zone. For example, if your heart rate is too high the speed or resistance will decrease, and if your heart rate is too low the speed or resistance will increase.

A **fitness test** is as simple as recording your speed, resistance, workout duration, and your heart rate when you are done. For example, if you were using a treadmill, you could walk at 3 miles an hour at a 2% elevation for 20 minutes. The first time a person does this their heart rate, or pulse, might be 130 beats per minute when they are done. After a month of exercise, they could perform the same test and their pulse might be 120 beats per minute. A month later their pulse might be 110 beats per minute. A month later their pulse might be 104 beats per minute. We can see from this example that their heart rate dropped 26 beats per minute over a 3 month period. This represents a significant improvement of 20% in their cardiovascular efficiency, because $130 \times 20\% = 26$, and $130 - 26 = 104$. In other words, the same workload was being done by the heart to deliver oxygen to all of the muscles of the body, but it could do it with 20% less effort because it was saving 26 beats per minute. The great thing about this is that a person can monitor their fitness level, and see which direction they are going. As a result, a person has the ability to simply and accurately determine if they are becoming progressively stronger, healthier and more youthful. That is an excellent motivator!

Accurate fitness tests are only possible with quality fitness products. Walking, running or biking outdoors introduces many different variables so accurate fitness testing is not possible. Variables such as wind speed, wind angle, elevation, speed, temperature, and warm versus cold weather clothing are not a concern with indoor fitness products.

There are 4 main types of cardiovascular training. For **weight loss** it is recommended to exercise between 60% -70% of your maximum heart rate for a longer duration. For **aerobic conditioning** the range is 70% - 80% for moderate duration. For **high performance competitive training** the range is 80% - 90% for a shorter duration. For **interval training** a person will raise their heart rate to the upper end of their personal target zone for several minutes, and then slow down and/or decrease resistance to bring their heart rate down to the lower end of their personal target zone for a few minutes. This high intensity and then low intensity approach is repeated several times throughout their workout. This is an excellent way for a person to improve their **recovery time** which is how quickly their pulse returns to normal after exercise. Interval training is also more stimulating and less tiring than workouts that are always at a constant heart rate.

If you have a **gym in your home**, it is recommended to have a treadmill, elliptical, recumbent cycle, rower and upright cycle. It is important to use all 5 cardiovascular products in your fitness program to properly exercise your upper body, core or torso, and your lower body. All of the 400+ muscles and 200+ joints need regular and balanced exercise. Also, the variety of products keeps your workouts fun and exciting! These should be quality products purchased from an authorized and established dealer that stands behind all of their products. Exercise equipment is big and heavy, and cannot be shipped hundreds or thousands of miles to a service centre. It is up to the dealer to have trained technicians that can come to your

home to provide service if that should ever be necessary. With cheap products purchased from big box stores the cost of trying to keep products working can easily be two or three times higher than what you paid to purchase the products in the first place! If you invest in quality products they rarely require service. The popular saying is true, “Cheap products are cheap to purchase, but expensive to own. Quality products are more to purchase, but inexpensive to own.” People who want to make a wise investment often say they only want to buy a product once. They don’t want to buy it two or three times and never have anything that works properly.

Another important consideration is that walking, running and biking are primarily lower body exercises. Heart attacks and strokes do not occur in the legs! Therefore it is essential that your cardiovascular program includes fitness products that **exercise your upper body and core** while you are in your heart rate target zone. The elliptical cross-trainer, and the rowing machine are the **only** cardiovascular products that exercise your core and upper body. The treadmill provides the best weight-bearing exercise for bone density, and you can adjust the elevation to take the pressure off of the ankles, knees and hips. The recumbent cycle and upright cycle work the legs and hip areas differently, and both should be used for optimum lower body development. If you are not sure of this, try them both out in the same workout and you will see and feel the difference.

Let’s not forget about one of the best cardiovascular exercises there is, which is swimming. Many people nowadays are using a **Swim Spa to combine cardiovascular exercise with hydrotherapy!** Professional swimmers use and recommend Swim Spas for all of their unique and outstanding benefits. In a quality Swim Spa you are swimming against a current that you can control the speed of, and therefore you can swim at whatever speed you want, and you never reach the end of the Swim Spa. In a properly designed Swim Spa there will be two currents, with one on each side of your body so you have balanced resistance on both sides. It’s not good to have a single current hitting you in the head. When you are swimming in a Swim Spa you never need to turn around like you would in a swimming pool, so it provides continuous activity and the ideal way to improve your swimming technique. Also, the water is not deep enough to be a concern for people who can’t swim yet, and it is the best and safest way to learn how to swim! All of the muscles and joints are being used in swimming, which provides one of the best cardiovascular workouts there is. You can even do a total body workout without swimming at all. A person can do shoulder presses, chest presses, arm exercises, leg and hip exercises, and stomach and back exercises, just by moving their body against the current. A Swim Spa is heated so it can be used throughout the year. At one end of the Swim Spa is your hydrotherapy spa which can be used before and/or after your cardiovascular training. A Swim Spa provides both of these amazing programs, hydrotherapy and cardiovascular, in a smaller, more affordable package than purchasing a swimming pool and a hot tub separately. **(See the M.E.D. Therapy Spa Section in the Course.)**

An important consideration with a therapy spa or a Swim Spa is to use a **natural water treatment program**. Because you are soaking and swimming in the water, and your skin is a membrane, and the pores are open, you don’t want to be in a “chemical soup”. A public hot tub, or public swimming pool will have higher concentrations of chemicals, and is not recommended because the goal is to detoxify the body, not to add more toxins to it. Natural water treatment is healthy for the users, and will help to protect your therapy or Swim Spa. It is also simpler, and less expensive than chemicals.

When it comes to exercise, everyone is agreed that a good cardiovascular program is a necessity if a person wants to be as strong, healthy and youthful as they can be. This fact has been scientifically proven by over 40 years of research, and is accepted and endorsed worldwide by the medical field, physiotherapy, chiropractic, fitness trainers, sports trainers, rehab trainers, professional athletes and millions of fitness enthusiasts!

It is a good idea to keep written records of your workouts including the date, which products you used, your speed, the resistance or elevation, and your average heart rate. This is very motivating because you can see your improvement over the months.

A few minutes of easy cardio and/or stretching on a good quality **WBV (Whole Body Vibration) Platform** is one of the best ways to prepare or warm-up your body for your workout. (See Level 1 of the Course). This should also be repeated for your cool-down after your workout.

In summary, a person should be aware of their personal target zones for their heart which are calculated based on their age and their level of health and fitness. All 5 indoor cardiovascular products should be used, and also a Swim Spa if possible to provide the maximum benefits for the whole body. A fitness test should be performed periodically to determine if a person's cardiovascular fitness is improving or declining. All 4 different cardiovascular workouts should be used for enhanced benefits if a person is in good physical health, and they have the approval of their doctor.

Cardiovascular Training benefits all **12 Systems of the human body**. To fully appreciate all of the health and fitness benefits, it is important to understand the 'Two Main Body Functions'. Below is a brief outline, but the 'Whole Body Vibration' and 'How The Body Works' Sections in this Course explain the 'Two Main Body Functions' in more detail.

The Two Main Body Functions

The body has a program, and it is cellular based. In other words, everything that happens in the body begins in the cells. There are **two main body functions** happening at the cellular level. A person's level of health or wellness is dependent on how well these two functions work.

1) The cells pump in, or absorb nutrients from the bloodstream and lymph fluid through their cell membrane. The cells use these nutrients for energy to perform their duties that they are responsible for in the body.

2) The cells pump out, or eliminate wastes into the bloodstream and lymph fluid through their cell membrane. These waste products are the result of the cell burning, or metabolizing nutrients for energy.

A key point to understand is that **cells do not 'pump' when we are not moving**. In other words, cells only pump in and out effectively when we physically move our body. It is only when our body moves that cells pump or 'vibrate' as a result of the effect of gravity. Cells are about 70% fluid on average, so they are like microscopic 'water balloons'. When we move the G-forces of gravity causes the cells to jiggle or vibrate, which allows them to pump in nutrients, and pump out waste products through their cell membrane. So movement keeps the cells healthy, and being sedentary makes the cells unhealthy.

Just like a motor takes in fuel to burn for energy, each individual cell in the body takes in nutrients to burn for energy. The motor produces waste products which we call exhaust, and each cell produces waste products which include uric acid, lactic acid, carbon dioxide, etc. If each cell gets enough movement or G-forces, it can pump in nutrients efficiently, and pump out wastes efficiently. As a result it will be healthy and function up to its potential. If the cell doesn't get enough movement it can't absorb nutrients and eliminate wastes efficiently, and it will be unhealthy and malfunction. **The health of the body as a whole is dependent on the individual cells getting enough movement so they can pump in and out effectively.** Healthy cells equal a healthy body.

Benefits of Cardiovascular Training for the 12 Body Systems

1) Circulatory System: Strengthens the heart muscle and creates flexible, clean arteries. Keeping arteries flexible and clean is the best way to prevent arteriosclerosis and blockages. The life-giving movement of cardiovascular exercise maximizes the delivery and uptake of oxygen and other life-giving nutrients by every cell in the body. Also, the retrieval of waste products is optimized from all of the trillions of cells in the body. Resting heart rate can be reduced by up to 25 beats per minute which will save over 1 million beats per month on the heart muscle!

2) Digestive System: Stimulates the assimilation of nutrients from the GI (Gastro-Intestinal) tract into the bloodstream to feed all the glands and organs. Also, the uptake of glucose into the cells is improved to help regulate blood sugar levels!

3) Endocrine System (Glandular System): By elevating the heart rate there is an increase in the quality and quantity of hormones produced by the glands, specifically the 3 master glands in the brain, the pituitary, pineal and hypothalamus. This will result in increased alertness and clarity, improved mood, and a more positive mental and emotional outlook. Also the metabolism is stimulated for optimum weight management. Studies have found that a good cardio program can turn back the internal biological clock by up to 30 years. The average 70 year old who is physically fit, is in better overall condition than the average 40 year old who is not physically fit!

4) Hepatic (Liver/Gallbladder) System: The liver is the largest organ in the body. The cardiovascular challenge stimulates the liver to become more efficient and effective as the master chemist, regulating the digestive process, and the blood filtering mechanism, and detoxifying itself of contaminants.

5) Immune System: The Immune System is a partnership between several systems in the body, including but not limited to, the Circulatory, Endocrine and Lymphatic Systems. The body's immunity to disease is enhanced when this trilogy of systems is optimized through cardiovascular exercise.

6) Lymphatic System: Cardiovascular exercise quickly recirculates lymph fluid to the upper body to be filtered and cleansed through the lymph glands (lymph nodes). Enhanced perspiration which is replaced with pure water helps cleanse the lymph fluid and make the body more alkaline. This can be compared to an oil change in a vehicle.

7) **Muscular System:** Overall conditioning of over 400 skeletal muscles, which are the muscles that move the joints in the body. The **strength of gland and organ** smooth muscle tissue is directly related to the strength of the skeletal muscles. This is especially true for the muscles in the core or torso, resulting in healthier, stronger gland and organ function!

8) **Nervous System:** The simple, repetitious movements of cardiovascular exercise puts the body into the state of rest and repair which is the parasympathetic state. This is an excellent way to reduce stress and anxiety, and improve sleep patterns. The electrical communications within the nervous system are enhanced and kept healthy by the challenge of cardio training.

9) **Reproductive System:** The Reproductive System benefits in the same way as the rest of the Glandular System. See the Endocrine System mentioned above.

10) **Respiratory System:** The accelerated breathing rate, and deeper breathing required by cardiovascular exercise with strengthen the Respiratory System. Also, lung capacity is increased and the lungs are detoxified.

11) **Skeletal System:** The bones and joints are strengthened because of the challenge of movement and resistance. The uptake of calcium and other minerals is improved, because of the effect of the G-forces of gravity on the bone cells. This is especially important from middle age on to help prevent osteoporosis, and to keep the framework of the body, which is the skeletal system, strong and erect. All of the glands, organs and muscles are supported in the correct position by a strong skeletal system so they can function properly. Correct posture also feels good and looks good.

12) **Urinary System:** If the workout is intense enough to cause perspiration the burden is taken off of the kidneys. This is because the skin is used as an effective channel of elimination to cleanse the body and make it more alkaline.

FOOT ALIGNMENT:

Any type of exercise can put increased pressure on the arch of the foot. The ground force impact (GFI) of walking, jogging or running adds to the downward pressure of gravity, and can cause the arch to pronate or flatten. When this happens the ankle, knee, hip and back can shift out of position as well. Many back, shoulder and neck concerns are caused by the arch falling or flattening as a result of gravity. Heel spurs, bunions and plantar fasciitis are very common concerns with the feet. The older we get the more of a problem this is because gravity has had longer to work against proper foot alignment. Cardiovascular Training and Strength Training can add extra weight to the body while working out, which puts more weight on all of the joints including the feet. Using the Vibration Platform (see Chapter 5) before and after a cardio or strength workout can relieve discomfort caused by gravity, and improve the health of the feet and the legs.

The best long-term solution is to use a **foot orthotic that is a foot realigner**. It is custom fitted to the foot, and is based on the correct alignment of the arch. This is very beneficial for plantar fasciitis, heel spurs, bunions, and sore, tired feet. The 'Flex Foot Orthotic' has a proven track record, and has been used effectively for over 40 years as a foot realigner.

Complete the following interesting Review, and email, fax or bring it to LEGGE FITNESS SUPERSTORES to be checked. You will receive a \$75 Gift Card when you complete the 'FITNESS COURSE'.

CARDIOVASCULAR TRAINING – Review

Section A – TRUE or FALSE: (Circle either T or F)

1. Cardiovascular training has become a worldwide practice over the last 40 years. T F
2. In the 1960's heart patients were often kept in bed for weeks or even months after having a heart attack. T F
3. A good cardiovascular program will increase a person's resting heart rate. T F
4. The two best doctors in the world are your right and left arm. T F
5. Most of what is going on in the body is controlled by the conscious mind. T F
6. Mental and emotional stress puts a burden on the subconscious mind. T F
7. In the 1970's cardiologists started getting heart patients out of bed sooner. T F
8. The cardiac muscle does not need exercise like the skeletal muscles do. T F
9. The cardiac muscle needs rest to get stronger. T F
10. A cardiovascular program can reduce resting heart rate by 25 beats per minute. T F
11. Most people have a health and fitness potential that is much lower than they realize. T F
12. With a good cardio program 10 million beats can be saved each month on the heart muscle. T F
13. The famous saying is, "The two best doctors in the world are your right leg and your left leg." T F
14. Most of what is going on in the body is controlled by the subconscious mind. T F
15. Treadmills and ellipticals are both weight bearing fitness products that provide a good cardiovascular workout. T F
16. The repetitious movement of walking puts the body into the state of "rest and repair." T F
17. Many people have found that walking does not improve mental and emotional health. T F
18. A 20 year old has a maximum heart rate of 180 beats per minute. T F

19. A 40 year old has a maximum heart rate of 180 beats per minute. T F
20. A person in good health would normally exercise between 65% and 85% of their maximum heart rate. T F
21. Cardiovascular products should exercise only the lower body. T F
22. Interval training means exercising the lower body one day, and the upper body the next day. T F
23. Accurate fitness tests can only be done with quality fitness products. T F
24. A Swim Spa provides an excellent cardiovascular workout with all the benefits of hydrotherapy as well. T F
25. Recovery time is how quickly the pulse returns to normal after exercise. T F

Section B - MULTIPLE CHOICE: (Circle only the answer which most accurately completes the statement)

1. Cardiovascular training has been a worldwide practice over the last ...
A) 10 years
B) 20 years
C) 40 years
D) 100 years
2. Before the 1970's heart patients were kept in bed for long periods of time to ...
A) Rest the heart muscle
B) Prevent another heart attack
C) Give the heart time to heal
D) All of the above
3. Most people have a health and fitness potential that is ...
A) Lower than they realize
B) Higher than they realize
C) Close to what they are experiencing
D) None of the above
4. A good cardiovascular program can reduce a person's resting heart rate by up to ...
A) 10 beats per minute
B) 25 beats per minute
C) 50 beats per minute
D) None of the above
5. The subconscious mind is responsible for ...
A) What we think about
B) What we say
C) Our decisions
D) None of the above

6. A person's maximum heart rate is ...
 - A) 220 plus their age
 - B) 200 minus their age
 - C) 220 minus half their age
 - D) 220 minus their age

7. A healthy individual would normally exercise between ...
 - A) 65% and 85% of their maximum heart rate
 - B) 50% and 70% of their maximum heart rate
 - C) 90% and 100% of their maximum heart rate
 - D) None of the above

8. The conscious mind is responsible for ...
 - A) Controlling the digestive process
 - B) Regulating the quantity and quality of hormones
 - C) Our thoughts, words and actions
 - D) Keeping our heart and lungs pumping while we sleep

9. One of the best medicines for the subconscious mind is ...
 - A) A healthy diet
 - B) Walking
 - C) Drugs
 - D) Relaxation

10. Chronic long-term stress causes the subconscious mind to ...
 - A) Elevate the heart rate
 - B) Lower the heart rate
 - C) Not regulate bodily functions properly
 - D) None of the above

11. A healthy 30 year old training between 65% and 85% would be between ...
 - A) 130 and 170 beats per minute
 - B) 123 and 161 beats per minute
 - C) 117 and 153 beats per minute
 - D) 140 and 180 beats per minute

12. The weight bearing cardiovascular products are ...
 - A) Rowers
 - B) Recumbent bikes
 - C) Treadmills and ellipticals
 - D) Bikes

13. A variety of cardiovascular products should be used to ...
 - A) Exercise the upper body, core and lower body
 - B) Keep the workouts fun and exciting
 - C) Challenge the 400+ muscles and 200+ joints in different positions
 - D) All of the above

14. A person should wear a heart rate transmitter ...
 - A) To perform accurate fitness tests
 - B) To monitor their pulse

- C) To do heart-rate controlled workouts
 D) All of the above
15. A fitness test means ...
 A) Exercising between 65% and 85% of your maximum heart rate
 B) Recording your recovery time
 C) Recording speed, resistance, duration and pulse when you are done
 D) Doing interval training
16. The best cardiovascular products for the upper body and core are ...
 A) Treadmills and ellipticals
 B) Recumbent cycles and ellipticals
 C) Rowers and upright cycles
 D) Ellipticals and rowers

Section C – MATCHING COLUMNS: (Write the number from Column A beside the *best match* from Column B)

- | | |
|--|--|
| 1. Swim Spa combines ... | _____ Speed, resistance, duration, pulse |
| 2. Interval Training | _____ Quantity and quality of hormones |
| 3. 25 beats per minute equals | _____ Heart rate returns to normal |
| 4. A good cardio program can turn ... | _____ Benefits of cardio training |
| 5. Flexible, clean arteries ... | _____ Accurate heart rate readout |
| 6. Strength of glands and organs are ... | _____ The two best doctors |
| 7. Subconscious mind regulates ... | _____ What we say and do |
| 8. Simple, repetitious movements puts ... | _____ Body in state of 'rest and repair' |
| 9. Weight loss range | _____ 220 minus your age |
| 10. Aerobic conditioning range | _____ Parasympathetic state |
| 11. Competitive training range | _____ All muscles and joints used |
| 12. In the 1960's heart patients were ... | _____ Cardio and hydrotherapy |
| 13. Right leg and the left leg are ... | _____ Kept in bed for a long time |
| 14. State of 'rest and repair' | _____ Related to muscle strength |
| 15. Conscious mind determines | _____ Back the biological clock 30 yrs. |
| 16. Maximum heart rate | _____ High and low intensity intervals |
| 17. Most people have fitness potential ... | _____ Exercise core and upper body |
| 18. Fitness test means recording ... | _____ Primarily lower body exercises |
| 19. Treadmills and ellipticals | _____ Most of what is going on in body |
| 20. Recumbents, rowers and upright cycles | _____ Subconscious malfunctions |
| 21. Heart rate transmitter provides ... | _____ Have variety in your workout |
| 22. Recovery time is how quickly ... | _____ Bone density |
| 23. All 5 cardio products allows you to ... | _____ Not weight bearing exercise |
| 24. Walking, running and biking are ... | _____ 60 – 70% of max. heart rate |
| 25. Ellipticals and rowers | _____ That's higher than they realize |
| 26. Weight-bearing exercise improves ... | _____ Prevent arteriosclerosis |
| 27. Swimming is good cardio exercise because ... | _____ Over 1 million beats per month |
| 28. Proven by over 40 years of research | _____ 80 – 90% of max. heart rate |
| 29. Chronic long-term stress | _____ Weight bearing exercise |
| 30. Elevating the heart rate increases ... | _____ 70 – 80% of max. heart rate |

Section D – FILL IN THE BLANKS:

Cardiovascular training has become a worldwide practice over the last _____ years. As recently as the _____ heart patients were kept in bed for weeks and often for _____ after having a heart attack. Many heart patients died in _____, or if they did recuperate they did not participate in an _____ lifestyle.

This all began to change in the _____ because there was more research into _____ programs. Cardiologists began getting heart patients out of bed _____ after their heart attack, and started them on a graduated walking program. Within a _____ months many patients were walking _____ miles a day, and were in much better _____ than before their heart attack. They discovered that the heart needs _____ and appropriate _____ to be strong and function _____. If the heart does not get _____ exercise it will _____ and weaken just like any other muscle in the body.

It was discovered that a good cardiovascular program could reduce a person's _____ heart rate by up to 25 beats per _____. That translates into _____ beats per hour, or 36,000 beats per _____. In one month over 1 _____ beats can be saved on the heart _____. This is one of the greatest _____ extension programs available.

The _____ best doctors in the world are your _____ leg and your left _____. Walking is an effective way to improve _____ health, and also mental and _____ health as well. The repetitious _____ of walking puts the body into the parasympathetic _____, which is the state of “_____ and _____”. Walking for 20 _____ or more each day allows the _____ mind, and the subconscious _____ to relax, and to be able to deal with things that cause _____ more effectively.

Treadmills and _____ are weight bearing, and _____ cycles, rowing _____, and upright _____ are not weight bearing. Quality _____ products will monitor your _____ level, and also perform _____ tests for the individual. A fitness test is as simple as recording your _____, resistance, _____ duration, and your heart _____ when you are done. A weight loss program is 60% to _____% of your maximum _____ rate for a longer _____. Aerobic _____ program is 70% to _____% for _____ duration. Competitive training range is _____% to _____% of maximum heart rate for a shorter duration. For interval training a person will _____ their heart rate for several minutes, and then slow down and/or decrease _____ to bring their heart rate down to the lower _____ of their personal target zone for a few minutes. Interval training is an excellent way for a person to improve their _____ time which is how quickly their _____ returns to _____ after exercise.

It is important to use all 5 cardiovascular products in your fitness program to properly exercise your _____ body, core or _____, and your _____ body. All the _____ muscles and _____ joints need regular and _____ exercise. Also, the _____ of products keeps your workouts fun and _____. The Swim Spa combines _____ exercise with _____. Professional swimmers use and recommend Swim Spas for all of their _____ and outstanding _____. When you are swimming in a Swim Spa you never need to _____ around like you would in a swimming pool, so it provides _____ activity. All of the

muscles and _____ are being used in swimming, which provides one of the best cardiovascular workouts there is. You can even do a _____ body workout without swimming at all. A person can do shoulder _____, _____ presses, arm exercises, _____ and hip exercises, and stomach and _____ exercises, just by moving their _____ against the _____. An important consideration with a therapy spa or a Swim Spa is to use a _____ water treatment program.

In summary, a person should be aware of their personal _____ zones for their heart which are calculated based on their _____ and their level of _____ and fitness. All _____ indoor cardiovascular products should be used, to provide the _____ benefits for the whole body. A _____ test should be performed periodically to determine if a person's _____ fitness is improving or _____. All _____ different cardiovascular workouts should be used for enhanced benefits if a person is in _____ physical health, and they have the approval of their doctor.

FITNESS COURSE – Strength Training

Strength Training is the oldest exercise science and art that goes back thousands of years to the beginning of recorded history. It has always been known and believed that strength training, also called resistance training, will dramatically improve a person's overall level of strength, and also completely change their body shape and appearance.

Cardiovascular training is a much more recent science going back about 40 years to deal with the increase in heart disease in the western world in the last 60 years. Cardiovascular training is primarily working internally on gland and organ strength and a person's outward appearance might not change that much, except in the area of weight loss, and overall muscle toning with less body fat. Whereas strength training focuses on skeletal muscle and joint strength, and the improvement outwardly to a person's level of strength, and the shape of their body are very obvious in a short period of time.

Both cardiovascular training and strength training are essential for a person to maintain and enhance their level of health and fitness. For thousands of years people did manual labour throughout their lifetime because there were no machines to do the work for them. It is only since the industrial revolution of the 1800's that machines were invented to lessen the workload on the individual. In the western world, at the beginning of the 1900's, approximately 90% of the population lived and worked on farms in the country and did manual labour. About 10% of the population lived in the city doing office and factory work. By the end of the 1900's the numbers were reversed, and now less than 10% of the population live and work on farms, and over 90% of the population live in the city. Even the people doing farm work, have modern equipment nowadays that does most of the manual work for them. The result is that many people are not getting enough physical exercise challenge for their muscles and joints to maintain their health, and **each generation is getting progressively weaker**. Never before in human history have we had an epidemic of degenerative disease like we have today! Heart disease affects over 60% of the population in their lifetime, and cancer affects about 40% of the population. Diabetes, liver disease and kidney disease are not far behind!

The good news is that the **medical profession and researchers have found that 75% of degenerative diseases are preventable** with lifestyle changes of diet, exercise and stress reduction. It is interesting to note that machines are doing the work we used to do, and now we have to use exercise machines to replace the benefits of manual labour that we are not getting. However, a balanced exercise program of 30 minutes of cardiovascular training 3 times a week, and 30 minutes of strength training 3 times a week will help a person achieve their health and fitness goals. That is a very small time investment when you consider the amazing range of benefits you will enjoy. In fact, the time investment of 3 hours per week improves a person's productivity in their work, in their family, and in their social life, and much more is accomplished in a shorter length of time by a healthy, strong, and youthful individual. With an intelligent approach to exercise, you can receive more physical benefits in 3 hours per week than from 60 hours of manual labour, without any of the negative side effects of overuse of certain muscle groups, or the imbalance of one-sided movement.

Most people use the combination of a good quality **strength machine** and **free weights** for their strength training program. A quality strength machine should have cables and pulleys which are attached to a 200 pound stack of weight plates. A selector pin allows the user to select a weight from 10 pounds up to 200 pounds. Cables and pulleys provide

smooth resistance, and a **uniform resistance** through the whole range of motion. Because the cables are attached to the weight stack, a person has the same resistance from the first inch of movement and throughout the whole range of motion. This is much better than rods that bend, or bands that stretch for resistance, because they do not provide uniform resistance. With rods and bands the first part of the movement is easy, and then it becomes progressively harder. Also, a weight stack weighs the same year after year, but bending rods and stretching bands lose their resistance over time. A good strength machine will have a cable and pulley system that will provide exercises with **unlimited multidirectional resistance**. That means a person is not limited to a certain angle of movement. Having to steer the resistance means the stabilizer muscles will be used which is very important. Also, by pressing and pulling at different angles, the cartilage in the joints will not get worn at the same spot, and the ligaments, tendons and muscles will not get worn in the same spot. A quality machine is safe to use because you can't drop the weight on yourself, or get trapped under the weight.

A good quality strength machine will have a Leg Press station. This should be built strong with heavy industrial bearings. The **Leg Press is an important part** of the strength machine, because it enables the user to do a proper squat exercise while sitting down. The Leg Press should have a heavy flat plate to push with your feet, and a well-padded lumbar back support. Because you are sitting down, and pushing out the front with your feet, you can do the squat exercise in a safe position. There is no danger of dropping the weight on you, or getting caught under the weight. This can happen if a person is doing squats with a barbell on their shoulders. The squat exercise is the **best exercise to build total body strength**. The squat strengthens your ankles, calves, knees, quadriceps, hamstrings, hips, and even benefits the lower back and core. The body is designed to only be as strong as the lower body. To reach your potential in upper body strength, a person needs to have a strong lower body. So make sure your strength machine has a good quality Leg Press station.

Free weights are barbells and dumbbells, and are not attached to a machine. A barbell is a metal bar about 5 to 7 feet in length with weight plates that attach at each end, and both hands are used to lift it. A dumbbell is a metal bar about 8 to 16 inches in length with weight at each end, and one hand is used to lift it. Free weights only provide **unidirectional resistance** because they only work upwards against gravity. In other words, you only have resistance in one direction when you are pressing upward and perpendicular to the earth. This can over time create excessive wear on cartilage, ligaments, tendons and muscles. Free weights also have a potential risk factor by dropping the weight, and being trapped under the weight.

A strength training program will exercise all the major muscles and joints of the body. There should be a **balance of pushing and pulling** exercises. Pushing, means pushing away from the body with exercises such as a shoulder press, or a chest press, or a squat. Pulling, means pulling towards the body with exercises such as a chin-up, or rowing, or a leg curl. When we push away from the body it is called an **extension**, because we are extending or straightening the joint. When we pull towards the body it is called a **curl**, because we are curling or bending the joint towards the body. To achieve this, one muscle will contract on one side of the joint, while the opposing muscle on the other side of the joint will extend. For example, a **bicep arm curl** contracts the bicep muscles above the elbow on the front of the arm, and at the same time the tricep muscles above the elbow on the back of the arm extend (relax). With a **tricep arm extension** the opposite happens. The tricep muscles contract while the bicep muscles extend (relax). Another example is the **leg curl** exercise which contracts the hamstring muscles on the back of the thigh, and at the same time the quadricep muscles on the front of the thigh extend (relax). With a **leg extension** the opposite happens.

The quadricep muscles on the front of the thigh contract, while the hamstring muscles extend (relax). It is important to have a balance of pushing and pulling so that both sides of each joint get stronger at the same time, and at the same rate! Muscles move each joint in two directions, either bending the joint or straightening the joint. If the muscles on each side of the joint are exercised properly the joint will stay healthy, and there will not be excessive wear on the cartilage in the joint, or of the ligaments and tendons attached to the joint! A good quality strength machine will come with a **DVD that demonstrates all the exercises** you can do on that machine.

The **12 Basic Exercises are foundational** to provide balanced strength throughout the body, and to balance the exercise on each side of the joints.

- 1) Shoulder Press – Pushing above the head with resistance
- 2) Chin-up – Pulling down towards the head with resistance
- 3) Chest Press – Pushing away from the chest with resistance
- 4) Rowing – Pulling towards the chest with resistance
- 5) Bicep Curl – Curling or bending the arm with resistance
- 6) Tricep Extension – Straightening the arm with resistance
- 7) Sit-up or Crunch – Curling or bending the body at the waist
- 8) Back Extension – Straightening the body at the waist
- 9) Leg Curl – Curling or bending the leg with resistance
- 10) Leg Extension – Straightening the leg with resistance
- 11) Squat – Squatting and standing up with resistance
- 12) Dead Lift – Bending over and standing up with resistance

As with any exercise program, the individual should get the approval of their doctor before beginning to exercise.

There are many exercises that can be performed to supplement the basic exercises, but the 12 Basic Exercises make a good foundation for a strength training program. People usually begin with **one set of 12 to 15 repetitions** of each exercise. The resistance should be so light that they can easily perform the set with complete comfort. If they are not comfortable they should reduce the resistance, and also reduce the number of repetitions until they are comfortable. After 2 to 3 weeks they can experiment with increasing the resistance, and/or adding another set to each exercise. After another 2 to 3 weeks they can experiment with increasing the resistance again, and/or adding another set to each exercise. As time goes on the person's strength will improve dramatically, and what was once difficult will be easy. On a graduated and comfortable program over several months, many people will experience an increase in strength of 100% to over 500%! This is truly life-changing. But, how does it happen?

Strength training puts demands on all the muscles and joints in the body. Muscle tissue is broken down by the exercise, and the body responds by building stronger and larger muscles. That is why most people will do their strength training 3 times per week, and **have a day off between workouts** so their body can recuperate. The increased demand on the muscles results in significant gains in bodily strength. It also changes the size of muscles, which changes the shape of the body. Changes are happening inside the body as well. The internal glands and organs are made up of smooth muscle tissue, and the skeletal muscles are made of striated or striped muscle tissue so they can shorten and lengthen. To improve the health and strength of the smooth muscle tissue of the glands and organs, the skeletal muscles have to be strengthened. This is because the stronger, larger skeletal muscles need more

support from the glands and organs that feed them. The most important area to work for improving the health of the glands and organs is the core or torso area, because that is where most of the glands and organs are located. We do not have glands or organs in our arms and legs! In other words, we don't just do strength training to have a stronger, more attractive body. We do it to improve the health of our internal glands and organs, which is where health and strength and youthfulness comes from.

A Strength Machine can be used in a **strengthening mode**, which is high resistance and low reps. For example, the resistance would be high enough that a person could only do 6 to 8 repetitions of a particular exercise. Another option would be to use the machine in the **endurance mode**, which is low resistance and high reps. For example, the resistance would be low enough that a person could do 20 to 30 repetitions of a particular exercise. The **toning mode** is the in-between option. The resistance would be moderate and a person could comfortably perform 12 to 15 repetitions of an exercise.

In a strength training program there is a rest period between each set of an exercise. A **set is the number of repetitions** that you can comfortably do of a particular exercise. For example, a person might do 12 repetitions of a chest press. That would be one set. They would rest for 30 to 90 seconds, and then do another 12 repetitions which would be their second set. Then they would rest for another 30 to 90 seconds, and do another 12 repetitions which would be their third set. Most people do not do more than 3 sets of each exercise, however some people will do up to 5 sets. In the beginning it is recommended to start off with only one set of each exercise.

There are **18 good Supplementary Exercises** which can be added to the 12 Basic Exercises for more variety and to cover all the bases.

- 1) Lat Pull Downs
- 2) Lateral Arm Raises
- 3) Dips
- 4) Reverse Dips
- 5) Chest Flys
- 6) Reverse Arm Curls
- 7) Wrist Curls
- 8) Wrist Extensions
- 9) Incline Chest Press
- 10) Decline Chest Press
- 11) Side Bends
- 12) Upright Rows
- 13) Hand Grips
- 14) Glute Kicks
- 15) Front Leg Lifts
- 16) Leg Adductions
- 17) Leg Abductions
- 18) Calf Raises

The 12 Basic and 18 Supplementary Exercises provide 30 exercises which would give a person an effective total body strength workout. A person could do as many as 30 different exercises in 30 minutes, if they only did one set, and not too many repetitions, and if they didn't rest long between each exercise. At the other end of the spectrum a person might do as little as 6 different exercises in 30 minutes if they did several sets, and more repetitions, and if they rested longer between each set. As a general guideline it is a good idea to try and do 10 different exercises in 30 minutes, so that in 3 exercise sessions per week a person could do all 30 exercises at least once.

Most people will do a total of 10 to 30 sets in their 30 minute strength workout, depending on how many repetitions they do in each set, and also how long they rest between sets. For example, as a minimum a person could do 1 set of 10 different exercises which would be a total of 10 sets. As a maximum a person could do 2 sets of 15 different exercises, or 3 sets of 10 different exercises, or 4 sets of 7 different exercises, or 5 sets of 6 different exercises for a total of 30 sets in their exercise session. Any other combination which would add up to 10 to 30 sets per exercise session would be fine. There is an infinite number of different combinations of exercises, repetitions, and sets to do in your 30 minute workout. As you get stronger keep increasing the resistance and/or the number of repetitions and sets.

Depending on your age, and your fitness level, and your fitness goals you might decide on a different approach. One thing that every one agrees on is that variety is important so your body always has new and interesting challenges. Every 2 to 3 weeks it is recommended to change the number of exercises, and also the number of repetitions, and the number of sets you do so that your body doesn't become stagnant, and 'plateau' or get stuck at a certain level.

A good quality Strength Machine can also be used as a **cardiovascular product**. To do this a person would do all exercises at a very low resistance so they could easily perform 20 to 30 repetitions of each exercise. They would also **eliminate the rest period** between each set. The result would be that they could keep their heart rate elevated at a steady level in their age-related target zone. The person would gradually build up to 20 to 30 minute workout with their heart rate in the appropriate target zone. For **another type of cardio workout**, a cardio product such as a bike, rower, elliptical, or treadmill can be used during the rest period between sets. This will keep the heart rate elevated in the target zone. A Polar wireless heart rate transmitter should be used for accurate results.

It is a good idea to keep written records of your workouts including the date, which exercises you did, the number of repetitions, the number of sets, and the amount of resistance. This is very motivating because you can see your improvement over the months.

A few minutes of easy cardio and/or stretching on a good quality **WBV (Whole Body Vibration) Platform** is one of the best ways to prepare or warm-up your body for your workout. (See Level 1 of the Course). This should also be repeated for your cool-down after your workout.

Here is the **most important piece of information** to remember about strength training. Out of the 12 systems in the human body, there are only 2 systems that we have direct control over. They are the Muscular System and the Skeletal System. Strengthening our muscles and joints **will automatically strengthen the other 10 systems** in the body, which is the secret of health and vitality in improving our overall fitness potential!

Strength Training benefits all **12 Systems of the human body**. To fully appreciate all of the health and fitness benefits, it is important to understand the 'Two Main Body Functions'. Below is a brief outline, but the 'Whole Body Vibration' and 'How The Body Works' Sections in this Course explain the 'Two Main Body Functions' in more detail.

The Two Main Body Functions

The body has a program, and it is cellular based. In other words, everything that happens in the body begins in the cells. There are **two main body functions** happening at the cellular level. A person's level of health or wellness is dependent on how well these two functions work.

1) The cells pump in, or absorb nutrients from the bloodstream and lymph fluid through their cell membrane. The cells use these nutrients for energy to perform their duties that they are responsible for in the body.

2) The cells pump out, or eliminate wastes into the bloodstream and lymph fluid through their cell membrane. These waste products are the result of the cell burning, or metabolizing nutrients for energy.

A key point to understand is that **cells do not ‘pump’ when we are not moving**. In other words, cells only pump in and out effectively when we physically move our body. It is only when our body moves that cells pump or ‘vibrate’ as a result of the effect of gravity. Cells are about 70% fluid on average, so they are like microscopic ‘water balloons’. When we move, the G-forces of gravity causes the cells to jiggle or vibrate, which allows them to pump in nutrients, and pump out waste products through their cell membrane. So movement keeps the cells healthy, and being sedentary makes the cells unhealthy.

Just like a motor takes in fuel to burn for energy, each individual cell in the body takes in nutrients to burn for energy. The motor produces waste products which we call exhaust, and each cell produces waste products which include uric acid, lactic acid, carbon dioxide, etc. If each cell gets enough movement or G-forces, it can pump in nutrients efficiently, and pump out wastes efficiently. As a result it will be healthy and function up to its potential. If the cell doesn’t get enough movement it can’t absorb nutrients and eliminate wastes efficiently, and it will be unhealthy and malfunction. **The health of the body as a whole is dependent on the individual cells getting enough movement so they can pump in and out effectively.** Healthy cells equal a healthy body.

Benefits of Strength Training for the 12 Body Systems

1) Circulatory System: You can direct oxygen-rich, nutrient-rich blood to all of the muscles and muscle groups in the body, improving blood delivery and waste removal from the targeted areas.

2) Digestive System: Specific core exercises can strengthen the entire Digestive System, improving the break-down of food, and the assimilation of nutrients. This will result in better overall function of all the glands and organs of the body. Strong muscles can store more glucose in the form of glycogen which **helps regulate blood sugar** between meals. This is very beneficial for people with hyperglycemia (diabetics) and hypoglycemia (low blood sugar).

3) Endocrine System (Glandular System): Because of the sudden and increased demands for oxygen and other nutrients by the muscles the heart rate is quickly elevated. During the rest period between exercise sets the heart rate quickly drops. This type of **heart rate interval training** is very stimulating for the whole Glandular System. As a result, there is an increase in the quality and quantity of hormones produced by the glands, specifically the 3 master glands in the brain, the pituitary, pineal and hypothalamus. This will result in increased alertness and clarity, improved mood, and a more positive mental and emotional outlook. Also the metabolism is stimulated for optimum weight management. Just like with a good cardio program, studies have found that a good strength program can turn back the internal biological clock by up to 30 years. The average 70 year old who is physically fit, is in better overall condition than the average 40 year old who is not physically fit!

4) Hepatic (Liver/Gallbladder) System: The liver is the largest organ in the body. The exercise challenge stimulates the liver to become more efficient and effective as the master chemist, regulating the digestive process, and the blood filtering mechanism, and detoxifying itself of contaminants. Exercising the core or torso will specifically target the smooth muscle of the liver and gallbladder.

5) Immune System: The Immune System is a partnership between several systems in the body, including but not limited to, the Circulatory, Endocrine and Lymphatic Systems. The pumping action created by the extension and contraction of muscles improves the absorption of oxygen and nutrients into the cells of the body, and the elimination of waste products from the cells of the body. These are the 2 MAIN BODY FUNCTIONS. When this happens effectively the strength (immunity to disease) of every cell in the body is enhanced.

6) Lymphatic System: The pumping action of the muscles will help recirculate lymph fluid to the upper body to be filtered and cleansed through the lymph glands (lymph nodes). Enhanced perspiration which is replaced with pure water helps cleanse the lymph fluid and make the body more alkaline. This is similar to an oil change on a vehicle.

7) Muscular System: A Strength Machine is a great way to tone and strengthen all of the 400+ skeletal muscles in a safe and balanced manner. The **strength of gland and organ** smooth muscle tissue is directly related to the strength of the skeletal muscles. This is especially true for the muscles in the core or torso, resulting in healthier, stronger gland and organ function! Strength training will change the body shape, and improve energy, strength and stamina. It also builds self-discipline and confidence.

8) Nervous System: The exercise challenge releases stored tension and stress in the Nervous System, leaving the person relaxed and rejuvenated. The electrical communications within the nervous system are enhanced and kept healthy by the challenge of strength training.

9) Reproductive System: The Reproductive System benefits in the same way as the rest of the Glandular System. See the Endocrine System mentioned above.

10) Respiratory System: There are specific exercises that will help expand the rib cage. This will increase the lung capacity, and help detoxify the lungs. Also, specific breathing patterns will allow a person to get more oxygen to the muscles.

11) Skeletal System: The bones and joints are strengthened because of the challenge of movement and resistance. The alignment of the joints in the body is dependent upon the strength and condition of the muscles. Many neck, shoulder, back, hip, knee and ankle concerns could be improved or even prevented by a proper strength training program. The uptake of calcium and other minerals is improved, because of the effect of the G-forces of gravity on the bone cells. This is especially important from middle age on to help prevent osteoporosis, and to keep the framework of the body, which is the skeletal system, strong and erect. All of the glands, organs and muscles are supported in the correct position by a strong skeletal system so they can function properly. Correct posture also feels good and looks good.

12) Urinary System: Core exercises of the torso will strengthen the Urinary System. Also, if the workout is intense enough to cause perspiration the burden is taken off of the kidneys. This is because the skin is used as an effective channel of elimination to cleanse the body and make it more alkaline.

Complete the following interesting Review, and email, fax or bring it to LEGGE FITNESS SUPERSTORES to be checked. You will receive a \$75 Gift Card when you complete the 'FITNESS COURSE'.

STRENGTH TRAINING – Review

Section A – TRUE or FALSE: (Circle either T or F)

1. Strength training is the oldest exercise science and art going back thousands of years. T F
2. Strength training and resistance training are totally different. T F
3. Cardiovascular training is a recent science going back about 40 years. T F
4. Cardiovascular training focuses primarily on muscle and joint strength. T F
5. As a result of the Industrial Revolution people are doing more manual labour. T F
6. Research proves that 25% of degenerative diseases can be prevented with lifestyle changes. T F
7. Strength training focuses primarily on muscle and joint strength. T F
8. At the beginning of the 1900's about 90% of the population lived in the city. T F
9. Heart disease affects over 60% of the population in their lifetime. T F
10. Cancer affects almost 80% of the population. T F
11. 75% of degenerative diseases are preventable with lifestyle changes. T F
12. Without doing manual labour most people do not get enough exercise challenge to maintain muscle and joint strength. T F
13. Strength training improves the level of strength and body shape quickly. T F
14. Free weights provide multidirectional resistance. T F
15. It is important to do more pushing than pulling for strength. T F
16. Cables and pulleys on a strength machine give multidirectional resistance. T F
17. A quality Leg Press is an important part of a strength machine. T F
18. Free weights are barbells and dumbbells. T F
20. A balance of pushing and pulling exercises both sides of the joint equally. T F
21. Rowing is pushing away from the chest with resistance. T F
22. Out of the 12 Systems in the body we only have control over 4 of them. T F

23. We have direct control over our Nervous and Immune Systems. T F
24. Strengthening our Muscular and Skeletal systems will automatically strengthen the other 10 Systems in the body. T F
25. A Strength Machine cannot be used as a cardiovascular product. T F
26. We only have direct control over 2 of the 12 Systems in the body. T F
27. Internal glands and organs are made up of striated or striped muscle tissue. T F
28. A set is the number of repetitions that you can comfortably do. T F
29. Strengthening mode is high resistance and low repetitions. T F
30. Strength training increases the quality and quantity of hormones. T F

Section B - MULTIPLE CHOICE: (Circle only the answer which most accurately completes the statement)

1. In the Western World at the beginning of the 1900's ...
 A) About 90% of the population worked on farms
 B) About 50% of the population lived in the city
 C) About 10% of the population worked on farms
 D) None of the above
2. 75% of degenerative diseases can be prevented with ...
 A) A healthy diet
 B) Appropriate exercise
 C) Stress reduction
 D) All of the above
3. In the western world each generation is getting progressively weaker ...
 A) Because of too much exercise
 B) Because of too much work
 C) Because of poor diet, lack of exercise and stress
 D) None of the above
4. The health and strength of the glands and organs is directly related to ...
 A) A person's diet
 B) How rested a person is
 C) How relaxed a person is
 D) The strength of the skeletal muscles
5. A Strength Machine with cables and pulleys and a weight stack has the benefit of ...
 A) Uniform resistance through the whole range of motion
 B) Unlimited multidirectional resistance
 C) Providing the same resistance year after year
 D) All of the above

6. Two of the basic pushing exercises are ...
 - A) Chin-ups and Sit-ups
 - B) Squats and Chest presses
 - C) Dead Lifts and Bicep Curls
 - D) Rowing and Shoulder Presses

7. When doing a Leg Curl exercise the ...
 - A) Hamstring contracts and the quadricep extends
 - B) The bicep relaxes and the hamstring relaxes
 - C) The tricep contracts and the bicep relaxes
 - D) The quadricep contracts and the hamstring extends

8. Two of the basic pulling exercises are ...
 - A) Chin-up and Rowing
 - B) Bicep Curl and Tricep Extension
 - C) Dead Lift and Squat
 - D) Chest Press and Rowing

9. Out of the 12 systems in the body we have direct control over only 2 which are ...
 - A) Respiratory and Skeletal
 - B) Nervous and Lymphatic
 - C) Digestive and Endocrine
 - D) Muscular and Skeletal

10. Using a Strength Machine in the strengthening mode means doing ...
 - A) High reps with low resistance
 - B) High reps with high resistance
 - C) Moderate resistance and moderate reps
 - D) High resistance and low reps

11. Using a Strength Machine as a cardiovascular product means ...
 - A) Very high resistance and low reps with a rest period between sets
 - B) Very low resistance with high reps with no rest period between sets
 - C) Very low resistance with low reps with a rest period between sets
 - D) None of the above

12. When doing a Bicep Curl exercise the ...
 - A) The bicep contracts and the tricep extends
 - B) The tricep contracts and the hamstring extends
 - C) The quadriceps relaxes and the bicep contracts
 - D) All of the above

13. One of the best exercises to build total body strength is the ...
 - A) Chest Press
 - B) Dead Lift
 - C) Chin-up
 - D) Squat

14. The Strength Machine should have a good quality Leg Press because ...
 - A) It will strengthen the legs and hips
 - B) It will build total body strength
 - C) It is the safest way to do the squat exercise
 - D) All of the above

15. One of the best warm-ups and cool-downs for your strength workout is ...
 - A) A few minutes of walking
 - B) A few minutes of stretching
 - C) A few minutes of calisthenics
 - D) A few minutes on a WBV (Whole Body Vibration) platform

Section C – MATCHING COLUMNS: (Write the number from Column A beside the *best match* from Column B)

- | | |
|--|--|
| 1. The oldest exercise science is ... | _____ Epidemic of degenerative disease |
| 2. Cardiovascular Training provides ... | _____ Multidirectional resistance |
| 3. 75% of degenerative diseases are ... | _____ Contracts the bicep muscle |
| 4. Never before in human history | _____ 6 to 8 repetitions |
| 5. Heart disease affects over ... | _____ The chin-up, leg curl and rowing |
| 6. Cables attached to a weight stack ... | _____ Bending the leg with resistance |
| 7. Cables and pulleys provide ... | _____ A person can comfortably do |
| 8. The squat exercise is the ... | _____ Straightening the leg with resistance |
| 9. Pushing exercises include ... | _____ Glucose for blood sugar regulation |
| 10. Bicep arm curl exercise ... | _____ Strengthens all 12 body systems |
| 11. Free weights are unidirectional ... | _____ Pituitary, pineal and hypothalamus |
| 12. Low reps would be about ... | _____ Smooth muscle tissue |
| 13. Pulling exercises include ... | _____ Muscular and skeletal systems |
| 14. The squat exercise contracts ... | _____ Weight loss and muscle toning |
| 15. Strengthening mode is ... | _____ To change the shape of the body |
| 16. A 'set' is the number of repetitions ... | _____ Using a WBV Platform |
| 17. Cancer affects about ... | _____ The largest organ in the body |
| 18. Toning mode is ... | _____ When we do not move |
| 19. Best warm-up and cool-down is ... | _____ Because they only work upward |
| 20. We have direct control over the ... | _____ 60% of the population |
| 21. Strong muscles can store more ... | _____ On strength and condition of muscles |
| 22. Specific core exercises can ... | _____ Cells pump nutrients in & wastes out |
| 23. Strengthening muscles and joints ... | _____ Strength Training |
| 24. The 3 Master Glands are ... | _____ Best exercise for total body strength |
| 25. Glands and organs are ... | _____ The shoulder press and squat |
| 26. The 2 Main Body Functions | _____ The quadricep muscles |
| 27. The liver is ... | _____ High resistance and low reps |
| 28. Alignment of joints is dependent ... | _____ Moderate resistance and 12 to 15 reps |
| 29. Strength training is the best way ... | _____ Strengthen the entire digestive system |
| 30. Cells do not pump ... | _____ Provide uniform resistance |
| 31. Leg extension exercise involves ... | _____ 40% of the population |
| 32. Leg curl exercise involves ... | _____ Preventable |

Section D – FILL IN THE BLANKS:

Strength Training is the _____ exercise science that goes back thousands of years to the beginning of _____ history. Resistance training will dramatically improve a person's overall _____ of strength, and also completely _____ their body _____ and appearance.

Many people are not getting enough physical exercise _____ for their muscles and joints to _____ their health, and each _____ is getting progressively weaker. Never before in human history have we had an _____ of _____ disease like we have today. Heart disease affects over _____ of the population, and cancer affects about _____ in their lifetime.

The good news is that the medical profession and researchers have found that _____ of degenerative conditions are _____ with lifestyle changes of diet, _____ and stress reduction. A balanced exercise program of cardiovascular training and strength training improves a person's _____ in their work, in their _____, and in their social life, and much more is accomplished in a _____ length of time by a _____, strong, and _____ individual. With an intelligent approach to exercise, you can receive more _____ benefits in _____ hours per week than from _____ hours of manual labour.

A good quality _____ machine should have cables and _____ which are attached to a _____ pound stack of _____ plates. Cables and pulleys provide _____ resistance, and a uniform _____ through the whole range of _____. The Leg Press is an important part of the strength machine, because it enables the user to do a proper _____ exercise while sitting down. The squat exercise is the best exercise to build _____ body strength. To reach your _____ in upper body strength, a person needs to have a strong _____ body.

A strength training program will exercise all the major _____ and _____ in the body. There should be a balance of _____ and pulling exercises. Pushing means pushing away from the body with exercises such as a _____ press, or chest _____, or a _____. Pulling, means pulling towards the body with exercises such as a _____ or rowing, or a leg _____. When we push away from the body it is called an _____, because we are extending or _____ the joint. When we pull towards the body it is called a _____, because we are curling or _____ the joint towards the body. To achieve this, one muscle will _____ on one side of the joint, while the _____ muscle on the other side of the _____ will extend. It is important to have a _____ of pushing and pulling so that both sides of each joint get _____ at the same _____, and at the same _____. If the muscles on each side of the joint are exercised properly the joint will stay _____, and there will not be excessive wear on the _____ in the joint, or of the ligaments and _____ attached to the joint.

Strength training puts _____ on all the muscles and joints in the body. Muscle _____ is broken down by the exercise, and the body _____ by building _____ and _____ muscles. The increased demand on the muscles results in significant _____ in bodily strength. It also changes the size of the muscles, which changes the _____ of the body. Changes are happening _____ the body as well. The internal _____ and _____ are made up of _____ muscle tissue, and

the _____ muscles are made of striped _____ tissue. To improve the health of the smooth muscle tissue of the glands and organs, the skeletal muscles have to be _____. This is because the _____, larger skeletal muscles need more _____ from the glands and organs that _____ them. We don't just do strength training to have a stronger, more attractive body. We do it to improve the _____ of our _____ glands and organs, which is where _____ and strength and _____ comes from.

A Strength Machine can be used in a _____ mode which is high resistance and low reps. Another option would be to use the machine in the _____ mode, which is low resistance and high reps. The _____ mode is the in-between option. The resistance would be _____ and a person could comfortably perform 12 to _____ repetitions of an exercise. A good quality Strength Machine can also be used as a _____ product. To do this a person would do all exercises at a very _____ resistance so they could easily perform 20 to _____ repetitions of each exercise. They would also eliminate the rest _____ between each set. The result would be that they could keep their _____ rate _____ at a steady level in their age-related _____ zone. The person would gradually build up to a 20 to _____ minute workout with their heart _____ in the appropriate target _____.

A few minutes of easy _____ and/or stretching on a good quality WBV (_____ Body _____) Platform is one of the best ways to prepare or warm-up your body for your workout. This should also be repeated for your _____ after your workout. Here is the most important piece of information to remember about strength training. Out of the _____ systems in the human body, there are only _____ systems that we have _____ control over. They are the _____ system and the _____ system. Strengthening our _____ and joints will _____ strengthen the other _____ systems in the body, which is the _____ of health and _____ in improving our _____ fitness potential!

Strength training benefits all 12 Systems of the human body. To fully appreciate all of the health and fitness benefits, it is important to understand the '_____ Main Body Functions'. The body has a program, and it is _____ based. In other words, everything that happens in the body begins in the _____. There are two main body functions happening at the cellular _____. The cells _____ in, or absorb _____ from the bloodstream and lymph fluid through their cell _____. The cells pump _____, or eliminate wastes into the _____ and _____ fluid through their _____ membrane. The health of the body as a _____ is dependent on the _____ cells getting enough _____ so they can pump in and out effectively. Health cells _____ a healthy body.

